

Temporal Trends in Urine Culture Rates in U.S. Acute Care Hospitals During 2012-2017

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BACKGROUND

- Decreasing inappropriate urine cultures in hospitalized patients has been the target of recent diagnostic stewardship efforts
- STUDY OBJECTIVE: To assess temporal trends in urine culture rates in a large cohort of acute care hospitals

METHODS

- STUDY POPULATION: Microbiology data from 499 acute care hospitals participating in the Premier Healthcare Database and Cerner Health Facts
- DEFINITIONS: Urine cultures
 - admission cultures (AC) - collected on/before day 3
 - post-admission cultures (PAC) - collected on day 4 or later
- ANALYSIS: Hospital variability, temporal trends, regional variability in unadjusted rates; temporal trends were assessed using GEE models with a negative binomial distribution adjusted for hospital characteristics

RESULTS

- From 2012 to 2017, the mean unadjusted AC rates did not change, 18.7 vs. 18.4 per 100 discharges
- From 2012 to 2017, the mean unadjusted PAC rates decreased from 11.5 to 8.5 per 1,000 patient days (PD)
- Culture rates varied between hospitals:
 - Median hospital level AC rate was 17.2 (Inter-quartile range (IQR): 12.7-24.1)
 - Median hospital level PAC rates was 7.1 (IQR: 4.6-10.5) per 1,000 PDs
- In multivariable analysis, no temporal trends in AC rates were detected (rate ratio (RR) 1.01; 95% confidence interval (CI): 0.99-1.02).
- In multivariable analysis, PAC rates decreased 6.3% annually (RR 0.937; 95% CI: 0.93-0.95).
- For AC, significant associations ($p < 0.05$) were discharge month and region. Factors significantly associated ($p < 0.05$) with PAC rates: discharge month, region, teaching status, and bed size.

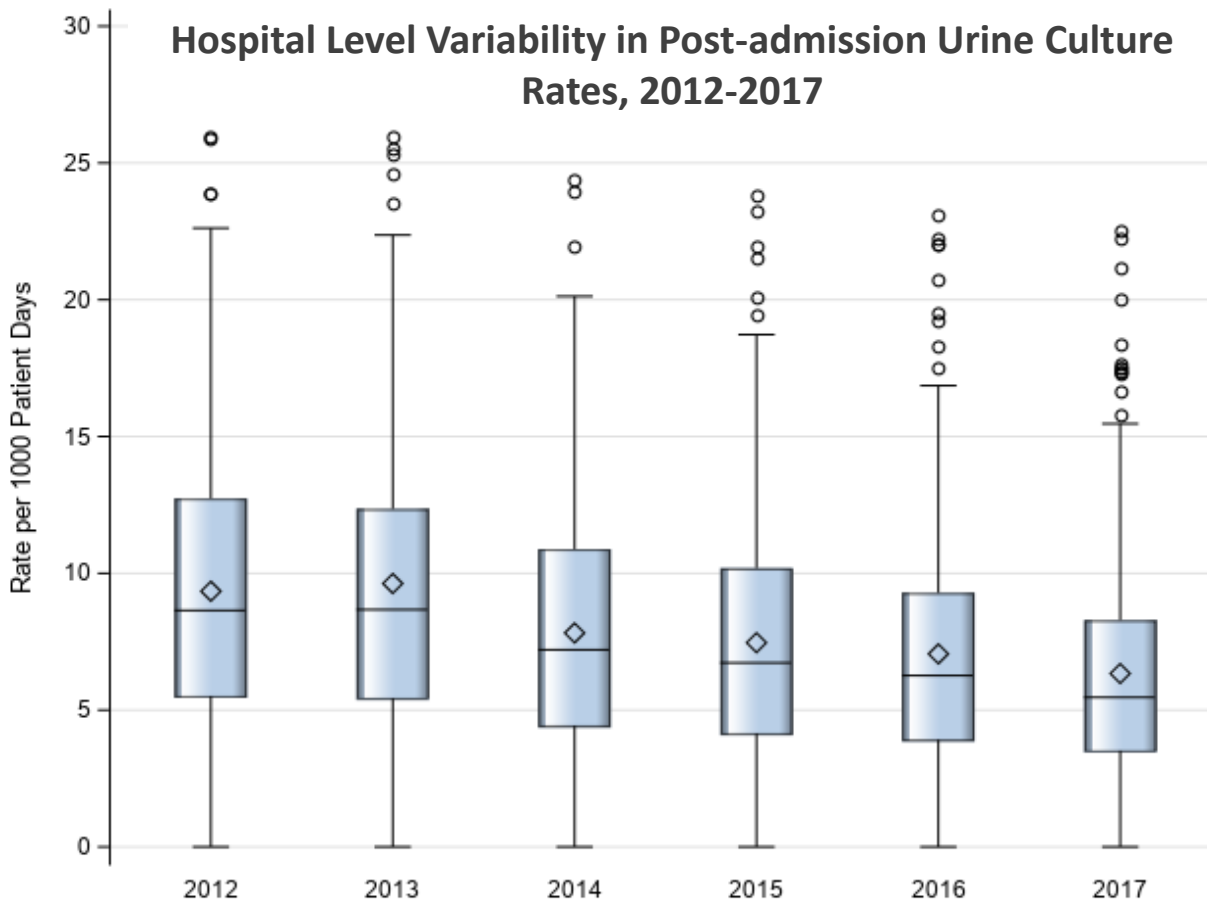
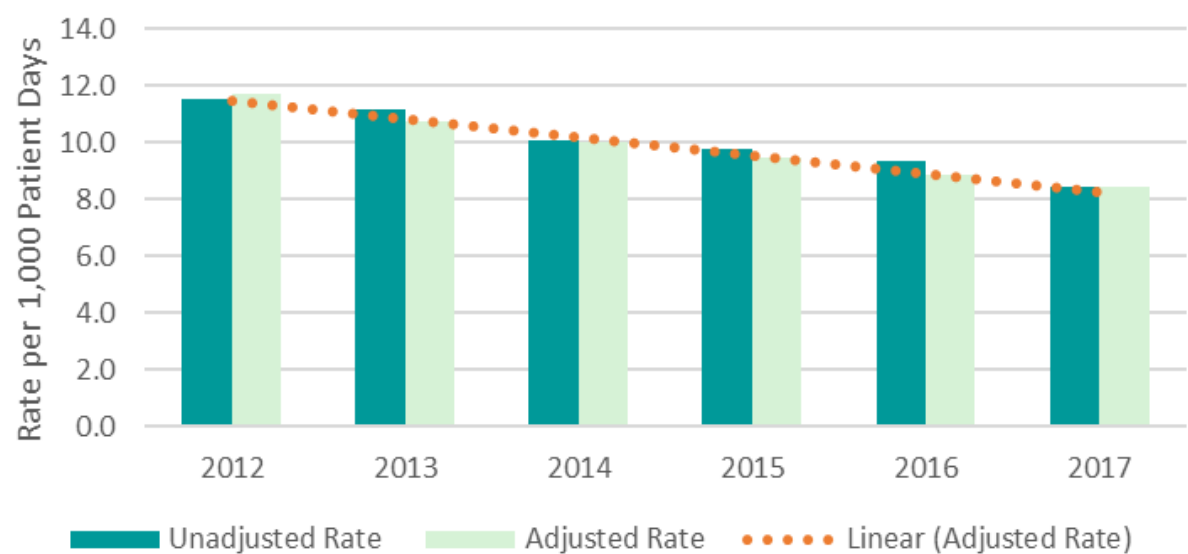
Between 2012 and 2017 post-admission urine culture rates in hospitalized patients decreased 6.3% annually



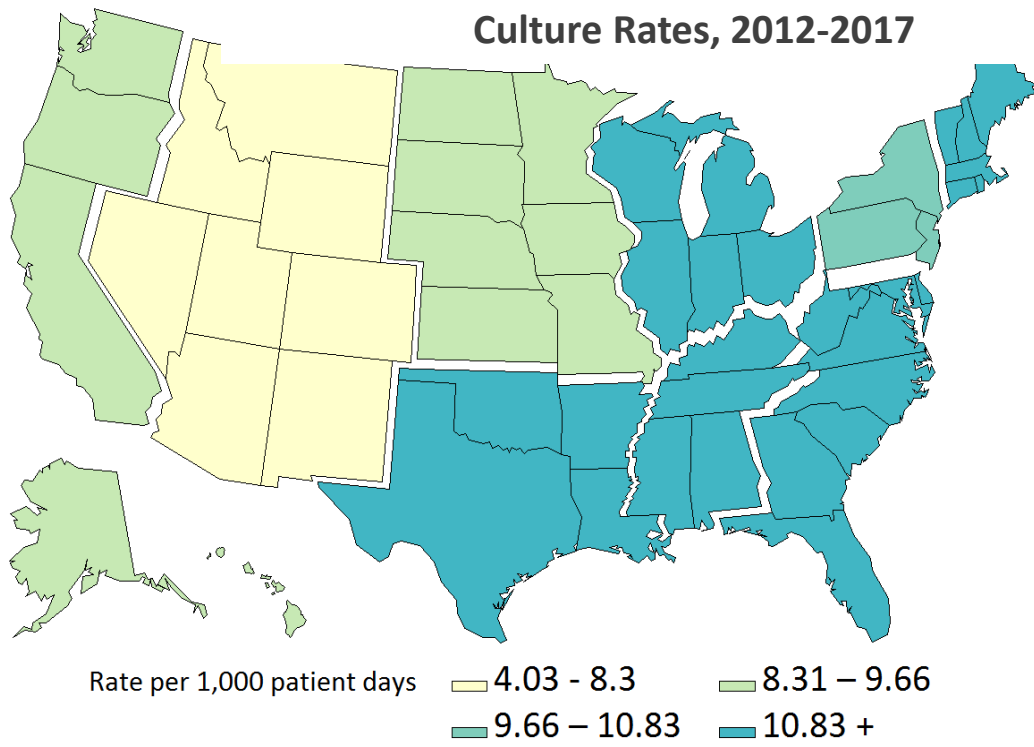
Changes in culturing
practices ?

Decreases in hospital-onset
UTI ?

Adjusted Post-admission Urine Culture
Rates Decreased 6.3% Annually ($p < .0001$)



Regional Variability in Post-admission Urine
Culture Rates, 2012-2017



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